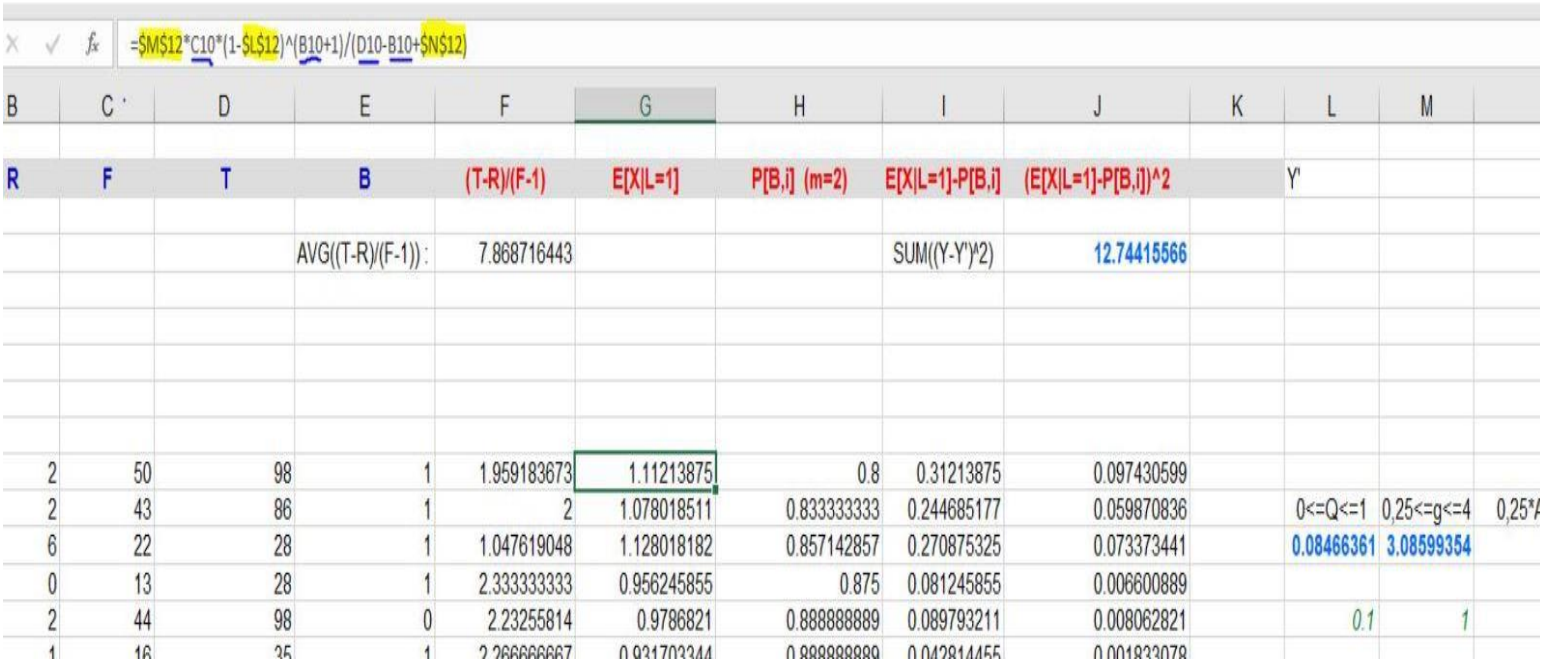
Advanced Functions and Formulae in Excel 2010

REFLECTIONS ON EXCEL COURSE – ALEXANDROS IOANNIDIS

After having read the Tutor Led Excel 2010 Advanced Function and Formulae document and practiced the "Try This Yourself" sections as well as the advice and self-improvement tips on this study guide, I have an overall better understanding of the helpful functions that this proprietary software makes available to its users, as well as the importance of Scoping formulas and generally planning and testing each function to ensure the correctness of the formulas.

More specifically, I had the opportunity to understand the difference between relative and absolute cell referencing in excel, as well as how excel interprets each one and in which situations each one is useful and how to use the fill handle t copy a particular formula down a certain range. I also had the opportunity to see some of the problems with relative formulas. For example, in the screenshot below I had produced an excel spreadsheet which implements the predictive RFMTC marketing model and to do this I needed to minimize a non-linear objective function with constraints values that are constant and need to be absolute referenced. To do this, I use both relative referencing (underlined with blue color) and



B	C	D	E	F	G	H	I	J	K	L	M
R	F	T	B	(T-R)/(F-1)	E[X|L=1]	P[B,i] (m=2)	E[X|L=1]-P[B,i]	(E[X|L=1]-P[B,i])^2		Y'	
			AVG((T-R)/(F-1)) :	7.868716443			SUM((Y-Y')^2)	12.74415566			
2	50	98	1	1.959183673	1.11213875	0.8	0.31213875	0.097430599			
2	43	86	1	2	1.078018511	0.833333333	0.244685177	0.059870836		0<=Q<=1	0,25<=g<=4
6	22	28	1	1.047619048	1.128018182	0.857142857	0.270875325	0.073373441		0.08466361	3.08599354
0	13	28	1	2.333333333	0.956245855	0.875	0.081245855	0.006600889			
2	44	98	0	2.23255814	0.9786821	0.888888889	0.089793211	0.008062821		0.1	1
1	16	35	1	2.266666667	0.931703344	0.888888889	0.042814455	0.001833079			

Moreover, the Tutor led document moves on to explain how to assign labels and names to certain cells, selecting ranges of cells with names or even certain tables or spreadsheet areas and the rules for creating acceptable names using text labels and the names box and deleting or editing names with the name manager. Furthermore, I learnt how to incorporate names into formulas for example summarizing (using sum() function) a range of cells who have been given a name, or even nesting functions such as multiplication/division within functions such as summary and many more combinations. During the study of this guide I had the opportunity to learn some of the Mathematical and Statistical functions that are available.

For example, some mathematical functions that I learnt include the INT() function which gives the rounded down number for both positive and negative numbers, the TRUNC() function which behaves in a similar fashion with INT() when it comes to positive numbers and the SQRT() function which returns the square root of a number and can be applied in a more practical application, where we want to calculate one side of the triangle given the fact that we know the length of the other we could use Pythagoras' theorem which involves square root calculation. There are also the ROUND(), ROUNDDOWN() and ROUNDUP() functions that help in determining how many decimal places the displayed and used number will have and determining which direction the rounding should take and the SUMIF() function which allows to sum the values of cells for certain conditions.

Some statistical functions that I learnt include the COUNT and COUNTA functions that count the number of cells in a range and the other does the same but it takes into consideration the text content in the cells. I also learnt the purpose of the function COUNTBLANK() which counts the number of empty cells (with no information) in a certain range and how to use it.

Additionally, I explored the capabilities that lookup functions can offer, both VLOOKUP and HLOOKUP for extracting data from lists or tables with exact or appropriate matches which ca be determined by a Boolean value, which is the 4th parameter of the 2 lookup functions.

I also learnt the different logical functions/operators that Excel supports such as **IF** and **AND** functions, which check for the correctness of a certain condition for example test whether the value of a cell is similar or different from the value of another cell, and the second function can be used to compare more than 2 values meaning multiple comparisons of conditions, respectively. There is also the OR function which also used for the comparison of multiple conditions. The difference between AND and OR logical functions is that the AND function returns TRUE if all of the conditions are true whereas the OR function returns TRUE if at least one of the functions is true, and in all other cases it returns FALSE. Additionally the document provides examples where combining all three functions IF, AND and OR is particularly useful. As well some typical examples which are noticed frequently such as The Dividend Percentage, The Investment Scale and The Bonus. Furthermore, I learnt how to configure the parameters of the IF function to check if a condition is TRUE or FALSE and respectively print a suitable informing message, for example if some of the values in a range of cells are over a certain value and the condition is true than a message could be printed on

the cell saying Surpassed Target or if the condition was FALSE than in that case we could print Below Target.

Moreover, I learnt how to use IF function to calculate values for example if a condition is TRUE than a certain formula would be implemented whereas if the condition/s are false than in that case another formula is implemented, similarly to many programming languages like Java, Python and C. Also I learnt how to perform and edit nested IF conditions in Excel and incorporating everything else I had learnt so far such as absolute and relevant referencing and Lookup functions and configuring the 4^{th} parameter to be a nested condition.

Lastly, I learnt about Formula auditing, error checking and some of the common error messages like #NULL! (when not using the appropriate separator for formulas arguments) and #NAME? (when a formula contains a name that doesn't exist). I also understood that in order to understand and work effectively with Excel I have to understand the error messages and reference back to them. I also saw one common mistake which is called the circular referencing which happens when a formula contains or references the same cell in which the formula is developed/written.

All in all, I believe this course Excel 2010 Advanced Function and Formulae will help me significantly in situations where I have to perform data analysis in data sets of various sizes which strongly reflects on my scientific discipline, my research interests and my professional prospective on which Excel will be an essential and very useful skill to have.