commerce undergraduate society

COMMERCE MENTORSHIP PROGRAM

MIDTERM REVIEW SESSION

COMM 205

PREPARED BY

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NOTE: CMP and this review session are not affiliated with the COMM 205 course or its professors. This does not serve as a substitute for lectures or course material.

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1) Introduction to Excel Functions

Common Operators:

=	equal to
<>	not equal to
<	less than
>	greater than
<=	less than or equal to
>=	greater than or equal to

Absolute Cell Reference:

- Remains the same when copied or when AutoFilled
- Locks column and row in place
- Dollar sign ($) is placed before the locked column/row
    - e.g. =A1

Relative Cell Reference:

- Changes when copied or when AutoFilled
- Column and row are not locked into place
- No signs are used
    - e.g. =A1

Mixed Cell Reference:

- A mix of relative and absolute references
    - e.g. =$A1 locks column A, =A$1 locks row 1

2) IF and Nested IF

=IF(logical_test, [value_if_true], [value_if_false])

Purpose of IF:

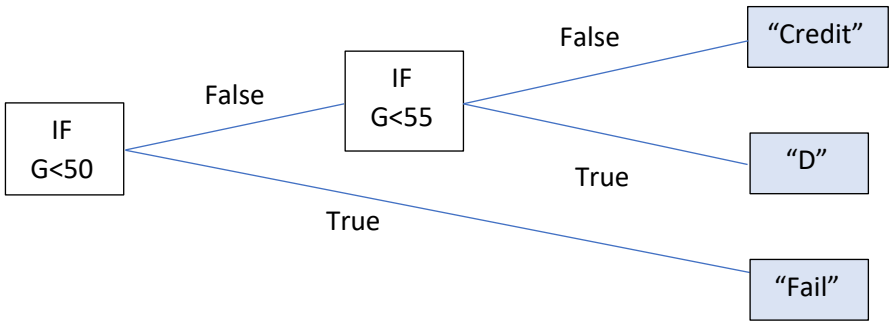
The IF function is used to test for specific conditions, constraints, etc. and will return either a TRUE or FALSE value (two possible results).

Logical Test:

Uses operators (e.g. =IF(A1>=50, “Pass”, “Fail”)).

Nested IFs:

Used when there are **more than TWO** possible results. Draw a tree diagram to understand how to approach and structure the function.



Practice Problem:

Complete the cells in the corresponding Excel sheet, “IF”.

3) AND and OR

=AND(logical1, [logical2], ...)

=OR(logical1, [logical2], ...)

Purpose of AND:

Returns TRUE if **all conditions** are met, else returns FALSE. Up to 255 conditions can be tested.

- =AND(50>40, 100<>101, 60<=70) is **TRUE**
- =AND(50>40, 100<>100, 60<=70) is **FALSE** (100=100)

Purpose of OR:

Returns TRUE if **any condition** is met, else returns FALSE if all conditions fail. Up to 255 conditions can be tested.

- =OR(50>40, 100=101, 60>=70) is **TRUE**
- =OR(50<40, 100<>100, 60=70) is **FALSE**

Usage in IF statements:

AND and OR can be used in IF since they only have two possible outcomes, TRUE or FALSE.

Practice Problem:

Complete the cells in the corresponding Excel sheet, "AND OR".

4) COUNTIFS and SUMIFS

=COUNTIFS(criteria_range1, criteria1, ...)

=SUMIFS(sum_range, criteria_range1, criteria1, ...)

Purpose of COUNTIFS:

Counts the number of cells in the criteria range that meet the given criteria (1 to 127 criteria can be tested). Quotation marks are needed to enclose constraints.

Purpose of SUMIFS:

Adds the values of the cells in sum_range that meet the given criteria (1 to 127 criteria can be tested). Quotation marks are needed to enclose constraints.

Rules:

- Sum_range and criteria_range must be the same **size**
- The sum_range must be a **numerical** range (no text)
- COUNTIFS: If you want to apply multiple criteria to the same range, you must use multiple functions

Practice Problem:

Complete the cells in the corresponding Excel sheets, "COUNTIFS" and "SUMIFS".

	A	B
1	Sum Range	Criteria Range
2	3	1
3	10	2
4	12	3
5	20	4

5) VLOOKUP

=VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

Purpose of VLOOKUP:

Looks up a value in the **first column** of the given table_array and returns a value from the designated col_index_num on the same row. Finds exact (range_lookup = 0 or FALSE) and approximate (range_lookup = 1 or TRUE) matches.

Additional Notes:

- Every value in the first column of table_array must be **UNIQUE**, else it will only return the first instance
- For an **exact** match: rows can be in any order
- For an **approximate** match: data must be sorted from **LOW to HIGH**, and only include the lowest value in range (e.g. “60” instead of “60-69”)
- Matches are **not** case-sensitive
- **Absolute reference** the table_array so that it does not change when copied

Practice Problem:

Complete the cells in the corresponding Excel sheet, “VLOOKUP”.

Argument	Description
lookup_value	Cell reference (i.e. the address of the cell) that contains the value to look up.
table_array	Range of the lookup table.
col_index_num	The column number that contains the result/return values in the lookup table.
[range_lookup]* *Optional—only required if you want to find an exact match.	By default, this is set to TRUE (i.e. you don’t have to type TRUE—this can be omitted). TRUE means Excel will look up the closest match (approximate match). If you want to Excel to find an exact match, set this to FALSE (i.e. you MUST type FALSE).

6) INDEX and MATCH

=INDEX(array, row_num, [column_num])

=MATCH(lookup_value, lookup_array, [match_type])

Purpose of INDEX:

Returns the **value** of the cell that corresponds with the given row/column inputs.

Purpose of MATCH:

Returns the **relative position** of a value in the array. *Lookup_array can only be either one column or one row.* If you use one row as lookup_array, Excel will return the column number (and vice versa). Match_type can either be approximate (1 or TRUE), which is the default, or exact (0 or FALSE).

Using both INDEX and MATCH:

Different than VLOOKUP since VLOOKUP's lookup_value must be in the **leftmost** column. In INDEX, row_num can be determined by MATCH. MATCH's lookup_array should have the same height and starting point as INDEX's array.

Practice Problem

Complete the cells in the corresponding Excel sheet, "INDEX MATCH".

7) LEFT, RIGHT, MID, and CONCATENATE

=LEFT(text, num_chars)

=RIGHT(text, num_chars)

=MID(text, start_num, num_chars)

=CONCATENATE(text1, [text2], ...)

Purpose of LEFT, RIGHT, and MID:

Returns **substrings** based on the given start_num (inclusive) and num_chars.

Purpose of CONCATENATE:

Joins **multiple text strings** together. Can be used interchangeably with an ampersand (&).

Practice Problem:

Complete the cells in the corresponding Excel sheet, "LEFT RIGHT MID CONCATENATE".

8) LEN and TRIM

=LEN(text)

=TRIM(text)

Purpose of LEN:

Returns **number of characters** in a text string (including spaces).

Purpose of TRIM:

Removes **all spaces** from text strings except single spaces between characters. Can nest LEFT, RIGHT, or MID.

Practice Problem:

Complete the cells in the corresponding Excel sheet, "LEN TRIM".

9) SUBSTITUTE and REPLACE

=SUBSTITUTE(text, old_text, new_text, [instance_num])

=REPLACE(old_text, start_num, num_chars, new_text)

Purpose of SUBSTITUTE:

Substitutes **old text** in a given text string **for new text**. Excel will only do substitutes in specific instance_num (without it, Excel will always substitute whenever the old_text is found). SUBSTITUTE is case-sensitive and can nest LEFT, RIGHT, MID, or LEN.

Purpose of REPLACE:

Replaces **old text** in a given text string for **new text**, based on its character position. REPLACE is case-sensitive and can nest LEFT, RIGHT, MID, or LEN.

Practice Problem:

Complete the cells in the corresponding Excel sheet, "SUBSTITUTE REPLACE".

10) FIND and SEARCH

=FIND(find_text, within_text, [start_num])

=SEARCH(find_text, within_text, [start_num])

Purpose of FIND and SEARCH:

Returns the **starting position** of find_text in within_text. If not found, error #VALUE! is returned. Start_num is 1 by default, but if start_num <= 0 or greater than the LEN of within_text, error #VALUE! is returned.

Differences:

- **FIND** is case-sensitive, **SEARCH** is not
- **FIND** does NOT allow wildcard characters, **SEARCH** does

Wildcard Characters:

- **?** is used to find any single character (one **?** is equal to one character)
- ***** is used to find any number of characters
- **~** is used to find an actual symbol (**?**, *****, or **~**) in a text string

Practice Problem:

Complete the cells in the corresponding Excel sheets, "FIND" and "SEARCH".

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11) Additional Practice Problems

Please refer to the last sheet, titled "Practice" in the Excel file for additional practice problems.

GOOD LUCK ON YOUR MIDTERM! ☺