Introduction
Excel Grade Book shortcourse is a non-credit, 2-hour course designed to help faculty, instructors, lecturers, and TAs at Texas Tech University to use Microsoft Excel program to create and maintain a grade book for their students. Excel has features that make an excellent grade book. You enter the grades on a worksheet, and at the close of the semester, you need only to enter the final grade.

Course Objectives:
After completing this shortcourse, you should be able to:
- Construct Formulas for your grade book, using your class scores;
- Use Functions in your grade book calculations;
- Understand Excel Errors;
- Compute your Class Grades;
- Compute letter Grades for your class;
- Drop the Lowest Grade in your grade book;
- Print your grade book.

Arithmetic operators are:
- + for addition
- - for subtraction
- * for multiplication
- / (forward slash) for division

Order of Operations
- 1st ( ) Parenthesis
- 2nd / * (divisions and multiplications)
- 3rd + - (additions and subtractions)
Formulas
Formulas are the heart and soul of a spreadsheet. All formulas in Excel begin with an equal sign.

A Formula syntax (order) is:
- Equal sign (=), Elements to be calculated (operands), Operator, Operands, ...
- **Example**: =5+2*3
- Excel performs the operations from left to right. So, the structure or order of the elements in a formula determines the final result of the calculation. See other calculation operators in formulas under help.

**Note:**
You should include a closing parenthesis for each opening parenthesis in a formula. When you type a closing parenthesis, Excel briefly displays the pair of parentheses in bold. If you are unsure of the order in which Excel will process a sequence of operators, use parentheses – even if they are not necessary. Parentheses also make your formulas easier to read and interpret, which is helpful if you or someone else needs to change them later.

A Range Reference
A range reference includes upper-leftmost cell, a colon, and the lower-rightmost cell. For example (b2:b10)

Relative Cell References
When copied, the address will change relative to the position of the cell where you paste the formula to reflect the new location of the formula.

Absolute Cell References
The address will not change when copied e.g. ($A$1). That is, the cell reference remains the same. A dollar sign in front of the column letter and /or row number makes the reference absolute, as opposed to relative. Without the $, the address would change relative to other information when copied. **Note:** The formula you will create for your class grade book contains absolute cell reference because some values used in your formula remain unchanged.
Example:

- Type =Average(B4:E4) in cell F4,
- Copy > Paste Special > Formula – Excel adjusts the references in each cell when copied. The cell references remain the same.
- To copy B2*B5 correctly and paste it, you need to type =$B2$*B5 in cell c5. Then Copy > Paste special > Formula.

Understanding Errors

- Understanding #### Errors in a cell
  o This happens when the column is not wide enough to display the data
- Understanding #Div/0! Errors
  o This happens when the formula is trying to divide a number by zero or an empty cell
- Understanding #Name? Errors
  o This happens when formula is not entered correctly. For example, =Ave(c4:c6) is not correct spelling for this function. Instead, it should be =Average(c4:c6).
- Understanding #Value! Errors
  o This happens when you use a textual value of a cell in your calculation. Click the cell> press F2> retype the formula.
- Understanding the #REF! Errors
  o This happens when the value in cell referenced in row is no longer available in formula.

Functions

Functions are ready-made formulas that perform a series of operations on a specific range of values. There are 434 functions in Excel. To search for a particular one, check the help menu.

Three components of a function are:

- The equal sign (=)
- Function name
- The Range of cells you want to use. You end up with “ = Function (Range).”
  o For example, Sum of series of numbers in cells A1 through H1 is:
    =Sum(A1:H1).
Pasting a Function

- Select a cell.
- Click Insert > function $f$.
- Choose categories > choose function name > OK.
- Choose the range > OK.

Printing your grade book

- File
- Page setup
- Set Page, Margins, Header/Footer, Sheet.
- To define a print area:
  - Select the cells
  - File
  - Print area
  - Set Print Area
  - Print
  - Print comments at the end of the sheet
    - File
    - Page set up
    - Sheet
    - At the end of sheet
    - Print

Note: The print area may be defined by the address of the first (upper-left) cell followed by a colon and the address of the last cell (lower-right) of the sheet. e.g., $A$1:$R$48.

Where to Get Help

If you need help with your project, you may contact Help Central Office at 742-HELP. If you need help from your instructor, you may e-mail heide.mansouri@ttu.edu.

Exercise

- Start the Excel program
- Double-click on the Worksheet1 tab, and type grades.
• Type the information from the table included at the end of this handout on Columns A through H and Rows 1-8 and Rows 13-18 Only of your worksheet. Include the student’s names, IDs, Home works, quizzes, and the final grade.

• Double-click on the Worksheet 2 tab, and type Formula Exercise.

<table>
<thead>
<tr>
<th>Formula</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>=3*6+12/4-2</td>
<td>19</td>
</tr>
<tr>
<td>=(3*6)+12/(4-2)</td>
<td>24</td>
</tr>
<tr>
<td>=3*(6+12)/4-2</td>
<td>11.5</td>
</tr>
<tr>
<td>=(3*6+12)/4-2</td>
<td>5.5</td>
</tr>
<tr>
<td>=3*(6+12/(4-2))</td>
<td>36</td>
</tr>
</tbody>
</table>

• On Worksheet 3
  o In B2:B8 cells, type the following numbers:
    - 56, 47, 89, 90, 32, 58  
  o Select the cells b2:b10.
  o Press AutoSum button on the Standard tool bar.
  o Press the Enter Key.
  o You’ll see =sum(b2:b10) in the result cell.

• In cell J3 place the formula =Sum(C3:H3) – Total possible points.

• Copy the formula in J3.

• Paste special into other cells in column J.

• In cell K4, type =(J4)/(J$3).

• Copy K4.

• Paste for other students in column K.

• Format the cells percentages.

• In cell L4, type the formula:
  o =VLOOKUP(k4,$A$14:$B$18,2,TRUE)

• Copy and paste special the formula for each student.

• In C10 type the formula: =Average(C4:C8)

• Paste special formula to other columns.

• Label column M “Lowest.”

• In cell M4 type the formula =MIN(F4:H4).

• Copy and Paste special formula in Column M for other students.

• Label Column N “Grade.”
• In cell N4 type the formula: \( \frac{(J4-M4)}{(J3-100)} \).
• Copy and Paste special formula in Column N for other students.
• Format the cell as number percent.
• Copy and Paste special formula for each student.
• In Cell O4 type the formula:
  \( =VLOOKUP(N4,$A$14:$B$18,2,TRUE) \)
• Paste special.

Exercise

<table>
<thead>
<tr>
<th>Names</th>
<th>StudentID</th>
<th>HW1</th>
<th>HW2</th>
<th>HW3</th>
<th>Quiz1</th>
<th>Quiz2</th>
<th>Final</th>
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<td>Alley, Anne</td>
<td>1234</td>
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<td>10</td>
<td>15</td>
<td>95</td>
<td>85</td>
<td>93</td>
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<td>Arnold, Sam</td>
<td>5678</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>95</td>
<td>85</td>
<td>75</td>
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<tr>
<td>Beam, Sun</td>
<td>2345</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>70</td>
<td>83</td>
<td>66</td>
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<tr>
<td>Black, Jane</td>
<td>3456</td>
<td>9</td>
<td>10</td>
<td>15</td>
<td>52</td>
<td>66</td>
<td>89</td>
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<tr>
<td>Green, Alice</td>
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<td>10</td>
<td>10</td>
<td>15</td>
<td>66</td>
<td>91</td>
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<tr>
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<table>
<thead>
<tr>
<th>grading scale</th>
<th>letter grade</th>
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</thead>
<tbody>
<tr>
<td>0.00%</td>
<td>F</td>
</tr>
<tr>
<td>60.00%</td>
<td>D</td>
</tr>
<tr>
<td>70.00%</td>
<td>C</td>
</tr>
<tr>
<td>80.00%</td>
<td>B</td>
</tr>
<tr>
<td>90.00%</td>
<td>A</td>
</tr>
</tbody>
</table>

Please e-mail your comments or suggestions to: heide.mansouri@ttu.edu