

ICS-7 Summary

Basics: Formulas(array formulas) /Input (validation, scrollbars, checkboxes, radio buttons)/Help

Functions: mathematical, statistical, special(IF, COUNTIF, SUMIF) ,

Reference(INDEX/MATCH/LOOKUPI),

Informational (e.g., IsText)

Worksheets (absolute/relative copy/cut/paste, [conditional]formatting, data tables)

Charting

Databases (auto/Boolean/criteria filtering + statistics, sorting); Pivot Tables for summarizing

Databases

VB Programming

Special (names for values/actions, auditing formulas, locking/hiding cells, files->Excel, Solver)

Lecture 1(1): Introduction to Spreadsheets and Excel

- 1) Spreadsheets: History and Learning Expectations
- 2) Workbooks and Worksheets:
- 3) Cell Basics: Entering, Editing, Deleting, Undoing/Redoing, Formatting:
- 4) Cells: Copying/Cutting and Pasting of Relative and Absolute References
- 5) Filling:
- 6) Computations on Cell Ranges:
- 7) Summary:

Lecture 2(2): Fundamentals of Excel Formulas

- 2) The Title Bar (and Quick Access Toolbar):
- 3) The Ribbon:
- 4) Using the Excel Help System:
- 5) More Formula Auditing:
- 6) Formulas: Standard Operators:
- 7) Standard Functions:
- 8) Translating Mathematical Formulas to Excel Formulas:

Lecture 3(3): Some Special/Useful Functions

- 2) Random Numbers and Recalculation:
- 3) Simple Statistical Functions on Ranges:
- 4) The COUNTIF/COUNTIFS Functions (and more on using BOOLEAN values):
- 5) The IF/IFS functions:

Lecture 4(4): Scatter (aka XY) Charts

- 2) Creating Simple Scatter Charts and their Subtypes:
- 3) Creating/Formating Chart Titles, X and Y Axis Titles, Legends:
- 4) Formating Axes:
- 5) Formating the Plot Area and Gridlines:
- 6) Adding, Removing, and (re)Formating Data Series:

Lecture 5(5): Intermediate Worksheets, Cells, and Data Tables

(2 days)

- 2) The Form of Worksheets:
- 3) Comments/Styles (multiple formats) for Cells
- 4) Input Scrollbars:
- 5) Computing Data Tables:

- 6) Conditional Formatting:
- 7) Protecting Cells in Worksheets:
- 8) Selecting Many Cells at Once/Selecting Cells by Contents:

Lecture 6(7): Example Models

(2 days)

Tennis, Optimal Secretary hiring, etc.

Lecture 8(9): Basic Reference Functions

(2 days)

- 2) The INDIRECT function: Converting Text to Cell/Range Addresses
- 3) Quick Text Function Review: LEN, FIND, LEFT, RIGHT, MID
- 4) The ADDRESS, ROW, and COLUMN functions:
- 5) ROWS, COLUMNS, and CHOOSE:
--
- 6) The INDEX and MATCH functions:
- 7) The LOOKUP function:
- 8) 3 Quick Statistical Functions: RANK, SMALL, and LARGE
- 9) The OFFSET function:

Lecture 10(11): Names for Values/Cells/Formulas and Actions (macros)

- 2) Names that refer to Values/Cells/Ranges/Formulas:
- 3) Names that refer to Actions:

Lecture 11(12): Charts with Names, More Controls, and Data Validation

- 1) Names for Charting: scope review
- 2) Special Ranges/Counting and 2 examples of Names in Charts
- 3) Checkboxes and Radio Buttons in Charts (2 more examples):
- 4) Validating Data Entry:
- 5) IS Information Functions:

Lecture 12(13): A Quick Tour of Other Charts

- 1) A Tour of Other Charts:
- 2) Trendlines:

Lecture 13(14): Arrays and Array Formulas

(2 lectures)

- 1) Array Constants:
- 2) Array Formulas in Cells:
- 3) The FREQUENCY Array Function:

- 4) Array Formulas: Operators
- 5) Array Formulas: More Functions
- 6) Array Formulas: A Final Complex Example

Lecture 15(16): Data Bases and Simple Queries via Autofilter and Sorting

- 1) Finding Information in Fields:
- 2) Autofiltering:
- 3) Autofiltering in Multiple Columns:
- 4) Sorting:

Lecture 16(17): More Complicated Queries via Cells

- 1) General Filtering Technique:
- 2) Referring to Cells (in which we enter values to change the query quickly):
- 3) Counting Records with Excel (array) Formulas

Lecture 17(18): Complicated Queries by Example

- 1) The Special Query Mechanism:
- 2) Copying Selected Records:
- 3) Database Calculations:

Lecture 18(19): Introducing Pivot Tables and Pivot Charts

- 1) Another Database, Another Query:
- 2) Pivot Tables:
- 3) Pivot Charts:

Lecture 19(20): More Examples of Pivot Tables

- 1) Analyzing the Car-Sales Database
- 2) Analyzing the Books Database

Lecture 20(21): Importing Data Files

- 1) Importing Fixed Width Text Files:
- 2) Importing Delimited Text Files:
- 3) Importing Data Directly from the Web:

Lecture 21(22): Introducing Visual Basic (VBA) Subroutines

- 1) Subroutines and MsgBox:
- 2) Cells:
- 3) Range:
- 4) For Loops:

Lecture 22(23): Visual Basic Functions and Parameters/Arguments

- 1) Functions, Parameters, and Arguments:
- 2) Quick Summary of Parameters and Arguments:
- 3) More Functions in VB:
- 4) Two Other Ways to Call/Test VB Functions:
- 5) Functions for the Cannon Shell Worksheet:
- 6) Ranges as Parameters:
- 7) Subroutine Parameters:

Lecture 23(24): Selection, Assignment and IF Statements: Compute PI Example

- 1) Selection:
- 2) Assignment Statements in VB:
- 3) If Statements in VB:
- 4) Computing Pi by Throwing Darts (Stepping Through Subroutines Interlude)

Lecture 24(25): Indefinite Looping: Do Until

- 1) Indefinite Looping with Do Until
- 2) The Step Option in For Loops:
- 3) Three other Indefinite Loops
- 4) Special VB Boolean Functions:
- 5) Examples of Indefinite Looping:
- 6) Indefinite Looping in the Cannon Shell Worksheet:
- 7) Bonus: Activating Subroutines Automatically

Lecture 25(26): More On Input/Two Examples

- 1) Rectangular Selections:
- 2) InputBoxes:
- 3) A Data-Table-Like Subroutine:
- 4) Generalizing Recorded Macros, A Final Example:

Lecture 26(27): Using Excel's Solver

- 1) Installing Solver:
- 2) Roots and Extrema of Equations:
- 3) Failures:
- 4) Cannon Revisited:
- 5) Regression Analysis: