

Advanced Computer Skills syllabus

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Basic programming with Visual Basic for Applications

What is an algorithm, input and output, VBA's editor and compiler inside Excel.

Subroutine, function, variable types (boolean, integer, long, real, double, character, string, variant), variable declaration, standard debug output, mathematical operations, mathematical functions, using Excel's functions inside VBA, strings' concatenation, strings' functions, comments, boolean expressions, boolean operations, IF-THEN-ELSE construct.

Date and time representation and handling, date and time functions, arrays declaration, array access, array sequential access with FOR-TO-STEP-NEXT, array as function parameters, arrays of Variant.

Interacting with Excel: taking data from Excel cells, taking data from Excel ranges, using VBA functions inside Excel.

Instructions: SUB, FUNCTION, DIM-AS, SET, IF-THEN-ELSE, OR, AND, NOT, FOR-TO-STEP-NEXT, DO WHILE-LOOP, SELECT CASE

Functions: sqr, log, exp, fix, round, abs, len, mid, left, right, chr, Ucase, Lcase, Trim, InStr, InputBox, MsgBox, Now, Date, DateAdd, DateDiff, Day, Month, Year, DateSerial, UBound, LBound, Val, DateValue.

Objects and object functions: Range, Worksheet.Range, Range.count, Range.Cells, Range.Value, Range.clear, WorksheetFunction.

Statistical Package for Social Sciences (SPSS)

What is SPSS, SPSS's competitors, cases and variables, data windows (data view, variable view), output window, how to export output objects.

SPSS version 18. Menus (file, edit, view, data, transform, analyze, graph, windows, help), tutorials, case studies, statistics coach, icons, dialog recall, variables, insert case, insert variable, split file, weight file, select cases, value labels, how to put value labels in output.

Variables: questionnaire answers (open, single closed, multiple closed, multiple closed with other), name, variable label, type, value labels, measure (scale, ordinal, nominal).

Missing values: what causes missing values, how to code them, system missing values.

Data: insert data, import from text file, import from Excel file, split file, select cases, weight cases, recode variables, compute variables, compute variables using boolean expressions, count variables, date/time wizard, replace missing values.

Analysis: normality assumption tests (histogram with normal curve, Skewness, Kurtosis, Q-Q plot, Kolmogorov-Smirnov), frequencies, descriptive statistics, contingency tables, chi-square.

Graphs with Chart Builder: bar, histogram, boxplot, scatterplot, Chart Editor, chart manager, chart templates, how to copy and export a chart.

Analysis: indexes, indexes with binary variables, using MEAN function, univariate analysis' techniques according to variable type (t-test, chi-square), bivariate analysis' techniques according to variable types (comparing means, t-test, ANOVA, Mann-Whitney U, Kruskal-Wallis, chi-square for contingency tables), Pearson and Spearman correlations, t-test for coupled data, Wilcoxon test, partial correlation, linear regression, non-linear regression, residuals plot, logistic regression, saving residuals and predicted values.