**Basics**

* Basic types: logical, integer, real, complex, character, raw.
* Basic mathematical and logical operations (+, -, /, \*, %%, |, &, !).
* Create/print/remove new variables. Get/change variable types. (print, rm, as.logical, typeof)
* c, length.
* NULL, NA, NaN (is.null, is.na, is.nan).
* Flow control (if statements, for loops).
* Numerical and logical indexing.
* Use functions (vectorization, default values) and write custom functions.
* Use built-in help, install packages, source other R files, set/get working directory. (install.packages, source, setwd, getwd).

**Vectors and matrices**

* Create vectors and matrices (c, vector, matrix, as.vector, as.matrix).
* Get dimensionality of vectors and matrices (length, nrow, ncol, dim).
* Basic matrix algebra: matrix addition, multiplication, transpose, determinant, trace, eigenvalue decomposition, Cholesky decomposition, sub-matrices, matrix diagonal (t, %\*%, det, eigen, chol, diag).

**Other types & data structures**

* **factor:** Create ordered and unordered factors. Get the levels of a factor, rename levels of a factor, drop unused levels of a factor (factor, as.factor).
* **data.frame:** Create a data frame.Rename columns.Modify, add and remove columns and rows (data.frame, as.data.frame, colnames, rbind, cbind).
* **list:** Create a list.Name and rename elements.Modify, add and remove list elements (list).

**I/O**

* Read and write data in CSV format (with/without column/row names) (read.csv, read.csv2, write.csv).
* Read and write serialized R objects (saveRDS, readRDS).

**Probability distributions**

* Use the PDF/PMF, CDF, quantile function and generate random variates for all distributions covered in this course that are supported in base R (pnorm,…).
* set.seed.

**Statistical graphics (use of ggplot2 recommended but not mandatory)**

* Basic plots: scatterplot, lineplot, boxplot, histogram, density plot (geom\_point, geom\_line, geom\_boxplot, geom\_histogram, geom\_bar, geom\_density).
* Adding to a plot: title, key/legend, text annotation, lines (labs, ggtitle, text, hline, vline, abline).

**Useful built-in functions**

* Working with strings (grep, gsub, paste, paste0, substr, regexp, gregexp).
* Creating sequences of values (rep, seq).
* Rounding (round, floor, ceiling).
* Numerical summaries (mean, median, var, sd, quantile, min, max, sum, prod).
* Apply functions (apply, tapply, lapply, sapply).
* Other (which, unique, table, sort, order, rank, sample).