

Syllabus

The structure of this tutorial

This tutorial runs over **six sessions of 90 minutes**, followed by one **voluntary mock exam**. Each session covers one topic that recurs across your KLU M.Sc. courses. The sessions build on one another, so following the order pays off, but every session also stands on its own if you want to revise a single topic.

Session **dates are still to be scheduled** and are marked *TBD* below. This page will be updated once the schedule is fixed.

Sessions

#	Topic	What it covers	Date
1	<u>Notation & Logic</u>	Number sets, intervals, sums and products, indices; statements, implication, and quantifiers	TBD
2	<u>Sets</u>	Elements, subsets, and cardinality; union, intersection, difference, and complement; Cartesian products and power sets; sets in business	TBD
3	<u>Functions</u>	Domain and range; the function gallery from linear to logarithmic; composition and inverses; monotonicity, convexity, and concavity	TBD
4	<u>Differentiation</u>	Rates of change and the derivative; power, product, quotient, and chain rules; the second derivative and marginal analysis	TBD
5	<u>Single Variable Optimization</u>	Stationary points and the first-order condition; second-order test; local vs. global; profit maximization and the economic order quantity	TBD
6	<u>Systems of Linear Equations</u>	From one equation to a system; Gaussian elimination; one, no, or infinitely many solutions; equilibrium and production planning	TBD

#	Topic	What it covers	Date
7	Mock Exam (voluntary)	A self-diagnosis under exam-like conditions, spanning all six sessions, with fully worked solutions	TBD

The Homework Rhythm

Each session comes with a set of **homework tasks** and a short **self-test quiz**. You work on them **between sessions**, at your own pace. Nothing is collected or graded.

- The **tasks** are problems with fully worked solutions (hidden until you want them). Treat them as the place where the real learning happens.
- The **self-test quiz** is a quick, formative check with instant feedback.
- The **cheatsheet** is a one- to two-page reference you can print and keep next to you while practicing.

Every session (from Session 2 onward) **opens with a recap and your questions** on the previous homework. So make a note of anything that stayed unclear and bring it along: that discussion is part of the plan.

Materials

All materials live on this website. Lectures are available as a web page, as reveal.js **slides**, and as a **PDF** (use the format links at the top of each lecture). Task sets can be printed as a worksheet, with solutions kept on the website.

For textbook and self-study recommendations, see the [Literature](#) page. For practical questions, see the [FAQ](#).