

TSINGHUA MATHCAMP 2018 COURSE: ANALYSIS & TOPOLOGY I

HAN LI 李涵, LECTURER

Analysis is one of the most ancient branches in mathematics. It is part of the foundation on which the skyscraper of modern mathematics is supported. Its uses range from differential equations, representation theory, to probability theory, differential geometry; and from classical physics, dynamical systems, to signal processing and economic equilibria. The goal of this course is to develop a rigorous treatment on the theory of differential and integral calculus of functions of one variable in connection with the topology on the real line. For research projects students will apply the tools that we developed in the course to analyze convergence, stability and errors in the problems that arises in various branches of mathematics.