

**History of Mathematics for Mathematicians:
Methods and results of textual analysis.
(Research-level course, M2 Recherche)**

Satyanad Kichenassamy

Titre en français : Histoire des mathématiques pour les mathématiciens : Théories et problèmes actuels.

Volume horaire : 20h.

Évaluation: épreuve écrite, 3h.

Enseignant : Satyanad Kichenassamy, Professor of Mathematics, LMR (UMR9008, CNRS & URCA)

Core references: see <https://www.normalesup.org/~kichenassamy/>

Course description : This course is an introduction to the modern History of Mathematics for graduate students in Mathematics, focusing on recent work on the analysis of mathematical discourse and concepts. It is motivated by the solution of several long-standing open problems. It shows that the close reading of rigorous mathematical texts, both ancient and contemporary, rests on the same approach: to treat them as *apodictic discourses* (rigorous, conclusive and motivated), amenable to forms of analysis that will be illustrated throughout the course, on the basis of primary sources from all periods, in French, English, Latin, Greek, Sanskrit, Tamil, German, Italian, Russian or Chinese, made available in English translations. As a result, no knowledge of languages other than English is required.

These analyses show that re-examination of mathematical texts, ancient or not, is necessary to understand the nature of our mathematical activity and to make up for the loss of mathematical content due to modern reinterpretations. Therefore, a reading of contemporary Mathematics from a historical perspective is useful to any mathematician or student of mathematics, including “Agrégation” candidates.

The lectures provide the necessary background to begin thesis work on the one of the several open problems in the subject. The material in our first-year course on History will be recalled so that the lectures will be self-contained.

- I. Contemporary Mathematics needs a historical dimension.**
- II. “Ancient” tools and concepts without modern equivalent.**
- III. “Contemporary” treatments are incomplete without history.**
- IV. Selected earlier achievements of the modern History of Mathematics.**
- V. Rigorous mathematics as production and exchange of apodictic discourses.**
- VI. Three open problems solved thanks to the notion of apodictic discourse.**
- VII. Four further examples of analysis of apodictic discourse.**
- VIII. Conclusions and perspectives.**